

8101-27



POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT

REGION 6	SITE NUMBER (to be assigned by Hq) LA01317
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**GENERAL INSTRUCTIONS:** Complete Sections I and III through XV of this form as completely as possible. Then use the information on this form to develop a Tentative Disposition (Section II). File this form in its entirety in the regional Hazardous Waste Log File. Be sure to include all appropriate Supplemental Reports in the file. Submit a copy of the forms to: U.S. Environmental Protection Agency; Site Tracking System; Hazardous Waste Enforcement Task Force (EN-335); 401 M St., SW; Washington, DC 20460.

I. SITE IDENTIFICATION

A. SITE NAME <b>DELTA SHIPYARD</b> (Formerly a division of Delta Ironworks)		B. STREET (or other identifier) Industrial Blvd.	
C. CITY Houma	D. STATE LA	E. ZIP CODE 70360	F. COUNTY NAME Terrebonne Parish
G. SITE OPERATOR INFORMATION			
1. NAME Ralph Arceneaux, Vice President		2. TELEPHONE NUMBER (504)868-7450	
3. STREET Industrial Blvd.	4. CITY Houma	5. STATE LA	6. ZIP CODE 70360
H. REALTY OWNER INFORMATION (if different from operator of site)			
1. NAME Leon Toups, President, Delta Services Industries		2. TELEPHONE NUMBER (504)868-7450	
3. CITY Houma (P. O. Box 101)	4. STATE LA	5. ZIP CODE 70361	

I. SITE DESCRIPTION  
See Attachment "A"

J. TYPE OF OWNERSHIP

☐ 1. FEDERAL ☐ 2. STATE ☐ 3. COUNTY ☐ 4. MUNICIPAL ☒ 5. PRIVATE

II. TENTATIVE DISPOSITION (complete this section last)

A. ESTIMATE DATE OF TENTATIVE DISPOSITION (mo., day, & yr.)	B. APPARENT SERIOUSNESS OF PROBLEM		
	<input type="checkbox"/> 1. HIGH	<input type="checkbox"/> 2. MEDIUM	<input checked="" type="checkbox"/> 3. LOW <input type="checkbox"/> 4. NONE
C. PREPARER INFORMATION			
1. NAME Deborah Vaughn	2. TELEPHONE NUMBER (214)742-4521	3. DATE (mo., day, & yr.) 3/11/81	

III. INSPECTION INFORMATION

A. PRINCIPAL INSPECTOR INFORMATION		4. TELEPHONE NO. (area code & no.)	
1. NAME Deborah A. Vaughn <i>Deborah A. Vaughn</i>	2. TITLE FIT, Geologist	(214)742-4521	
3. ORGANIZATION Ecology & Environment, Inc., 1509 N. Main, Suite 814, Dallas, TX 75201			
B. INSPECTION PARTICIPANTS			

1. NAME	2. ORGANIZATION	3. TELEPHONE NO.
Gordon Duncan	Ecology & Environment	(214)742-4521

C. SITE REPRESENTATIVES INTERVIEWED (corporate officials, workers, residents)		
1. NAME	2. TITLE & TELEPHONE NO.	3. ADDRESS
Leon Toups	President (504)868-7450	Industrial Blvd., Houma, LA 70360
Louis E. Talbot	Exec. Vice President, Delta Svcs. (504)868-7450	" " "
Ralph Arceneaux	Vice President (504)868-7450	" " "
Chris Olivier	Engineer, Delta Shipyards (504)868-7450	" " "

**SUPERFUND  
FILE**

**APR 30 1992**

**REORGANIZED**  
Continue On Reverse

REVIEWED BY (6ASASC): *X Solar*  
DATE *4/29/81*  
REVIEWED BY (6AEGH): *4/29/81*



## IV. SAMPLING INFORMATION (continued)

## C. PHOTOS

1. TYPE OF PHOTOS

☒ a. GROUND ☐ b. AERIAL

2. PHOTOS IN CUSTODY OF: EPA Region VI (see attached photos)

## D. SITE MAPPED?

☒ YES. SPECIFY LOCATION OF MAPS: EPA Region VI (see attached map and sketches)

## E. COORDINATES

1. LATITUDE (deg.-min.-sec.)

29°34'02" N

2. LONGITUDE (deg.-min.-sec.)

90°42'18" W

## V. SITE INFORMATION

## A. SITE STATUS

☒ 1. ACTIVE (Those industrial or municipal sites which are being used for waste treatment, storage, or disposal on a continuing basis, even if infrequently.)☐ 2. INACTIVE (Those sites which no longer receive wastes.)☐ 3. OTHER (specify):  
(Those sites that include such incidents like "midnight dumping" where no regular or continuing use of the site for waste disposal has occurred.)

## B. IS GENERATOR ON SITE?

☐ 1. NO ☒ 2. YES (specify generator's four-digit SIC Code): 3731, 3732

## C. AREA OF SITE (in acres)

Approx. 40

## D. ARE THERE BUILDINGS ON THE SITE?

☐ 1. NO ☒ 2. YES (specify):

## VI. CHARACTERIZATION OF SITE ACTIVITY

Indicate the major site activity(ies) and details relating to each activity by marking 'X' in the appropriate boxes.

<input checked="" type="checkbox"/> A. TRANSPORTER	<input checked="" type="checkbox"/> B. STORER	<input checked="" type="checkbox"/> C. TREATER	<input checked="" type="checkbox"/> D. DISPOSER
1. RAIL	1. PILE	1. FILTRATION	1. LANDFILL
2. SHIP	<input checked="" type="checkbox"/> 2. SURFACE IMPOUNDMENT	2. INCINERATION	2. LANDFARM
3. BARGE	3. DRUMS	3. VOLUME REDUCTION	3. OPEN DUMP
<input checked="" type="checkbox"/> 4. TRUCK	<input checked="" type="checkbox"/> 4. TANK, ABOVE GROUND	<input checked="" type="checkbox"/> 4. RECYCLING/RECOVERY	4. SURFACE IMPOUNDMENT
5. PIPELINE	5. TANK, BELOW GROUND	5. CHEM./PHYS./TREATMENT	5. MIDNIGHT DUMPING
<input type="checkbox"/> 6. OTHER (specify):	<input type="checkbox"/> 6. OTHER (specify):	6. BIOLOGICAL TREATMENT	6. INCINERATION
		7. WASTE OIL REPROCESSING	7. UNDERGROUND INJECTION
		8. SOLVENT RECOVERY	8. OTHER (specify):
		9. OTHER (specify):	

E. SUPPLEMENTAL REPORTS: If the site falls within any of the categories listed below, Supplemental Reports must be completed. Indicate which Supplemental Reports you have filled out and attached to this for..

☒ 1. STORAGE ☐ 2. INCINERATION ☐ 3. LANDFILL ☒ 4. SURFACE IMPOUNDMENT ☐ 5. DEEP WELL

☐ 6. CHEM/BIO/PHYS TREATMENT ☐ 7. LANDFARM ☐ 8. OPEN DUMP ☐ 9. TRANSPORTER ☐ 10. RECYCLOR/RECLAIMER

## VII. WASTE RELATED INFORMATION

## A. WASTE TYPE

☒ 1. LIQUID ☐ 2. SOLID ☐ 3. SLUDGE ☐ 4. GAS

## B. WASTE CHARACTERISTICS

☐ 1. CORROSIVE ☒ 2. IGNITABLE ☐ 3. RADIOACTIVE ☒ 4. HIGHLY VOLATILE

☐ 5. TOXIC ☐ 6. REACTIVE ☐ 7. INERT ☐ 8. FLAMMABLE

☐ 9. OTHER (specify):

## C. WASTE CATEGORIES

1. Are records of wastes available? Specify items such as manifests, inventories, etc. below.

Yes. Manifests and records are kept at the shipyard office.



## VIII. HAZARD DESCRIPTION (continued)

☐ B. NON-WORKER INJURY/EXPOSURE☐ C. WORKER INJURY/EXPOSURE☐ D. CONTAMINATION OF WATER SUPPLY☐ E. CONTAMINATION OF FOOD CHAIN☒ F. CONTAMINATION OF GROUND WATER

Contamination of ground water could occur due to infiltration of oil contaminated waters generated in the oil/water separation process. This contamination should be minimal because soil permeabilities at the site are very low ( $10^{-7}$  to  $10^{-8}$  cm/sec). See Attachment "C". Sampling of monitoring wells would determine whether contamination has occurred.

☐ G. CONTAMINATION OF SURFACE WATER



## VIII. HAZARD DESCRIPTION (continued)

☐ N. FIRE OR EXPLOSION☐ O. SPILLS/LEAKING CONTAINERS/RUNOFF/STANDING LIQUID☐ P. SEWER, STORM DRAIN PROBLEMS☐ Q. EROSION PROBLEMS☐ R. INADEQUATE SECURITY☐ S. INCOMPATIBLE WASTES



Continued From Page 8

X. WATER AND HYDROLOGICAL DATA (continued)				
H. LIST ALL DRINKING WATER WELLS WITHIN A 1/4 MILE RADIUS OF SITE				
1. WELL	2. DEPTH (specify unit)	3. LOCATION (proximity to population/buildings)	4. NON-COM- MUNITY (mark 'X')	5. COMMUN- ITY (mark 'X')
None				

I. RECEIVING WATER

1. NAME  
Houma Navigation Canal

☐ 2. SEWERS      ☒ 3. STREAMS/RIVERS

☐ 4. LAKES/RESERVOIRS      ☐ 5. OTHER (specify): \_\_\_\_\_

6. SPECIFY USE AND CLASSIFICATION OF RECEIVING WATERS  
Fish, wildlife and other aquatic and semi-aquatic life, secondary contact recreations.  
Part of the Terrebonne Watershed.

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XI. SOIL AND VEGETATION DATA

LOCATION OF SITE IS IN:

☐ A. KNOWN FAULT ZONE      ☐ B. KARST ZONE      ☒ C. 100 YEAR FLOOD PLAIN      ☒ D. WETLAND

☒ E. A REGULATED FLOODWAY      ☐ F. CRITICAL HABITAT      ☐ G. RECHARGE ZONE OR SOLE SOURCE AQUIFER

---

XII. TYPE OF GEOLOGICAL MATERIAL OBSERVED

Mark 'X' to indicate the type(s) of geological material observed and specify where necessary, the component parts.

A. CVERBURDEN	B. BEDROCK (specify below)	C. OTHER (specify below)
1. SAND	X Quaternary Terrace & Alluvial Deposits	
X 2. CLAY	X "	
3. GRAVEL		

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XIII. SOIL PERMEABILITY

☐ A. UNKNOWN      ☐ B. VERY HIGH (100,000 to 1000 cm/sec.)      ☐ C. HIGH (1000 to 10 cm/sec.)

☐ D. MODERATE (10 to .1 cm/sec.)      ☐ E. LOW (.1 to .001 cm/sec.)      ☒ F. VERY LOW (.001 to .00001 cm/sec.)

G. RECHARGE AREA

☒ 1. YES      ☐ 2. NO      3. COMMENTS: Only in that it is a coastal wetland.

H. DISCHARGE AREA

☒ 1. YES      ☐ 2. NO      3. COMMENTS: Only in that it is a coastal wetland.

I. SLOPE

1. ESTIMATE % OF SLOPE      2. SPECIFY DIRECTION OF SLOPE, CONDITION OF SLOPE, ETC.

0 - .5%      South

J. OTHER GEOLOGICAL DATA

See Attachment "C"



STORAGE FACILITIES SITE INSPECTION REPORT  
(Supplemental Report)

INSTRUCTION  
Answer and Explain  
as Necessary.

1. STORAGE AREA HAS CONTINUOUS IMPERVIOUS BASE

☒ YES ☐ NO

2. STORAGE AREA HAS A CONFINEMENT STRUCTURE

☒ YES ☐ NO

3. EVIDENCE OF LEAKAGE/OVERFLOW (If "Yes", document where and how much runoff is overflowing or leaking from containment)

☐ YES ☒ NO

4. ESTIMATE TYPE AND NUMBER OF BARRELS/CONTAINERS

5 above ground storage tanks for recycled oil. See photos 1 & 5.

5. GLASS OR PLASTIC STORAGE CONTAINERS USED

☐ YES ☒ NO

6. ESTIMATE NUMBER AND CAPACITY OF STORAGE TANKS

Approx. 100,000 gallons.

7. NOTE LABELING ON CONTAINERS

Storage tanks are labeled with safety notices.

8. EVIDENCE OF LEAKAGE CORROSION OR BULGING OF BARRELS/CONTAINERS/STORAGE TANKS (If "Yes", document evidence. Describe location and extent of damage. Take PHOTOGRAPHS.)

☐ YES ☒ NO

9. DIRECT VENTING OF STORAGE TANKS

☒ YES ☐ NO

10. CONTAINERS HOLDING INCOMPATIBLE SUBSTANCES (If "Yes", document evidence. Describe location and identity of hazardous waste. Take PHOTOGRAPHS.)

☐ YES ☒ NO

11. INCOMPATIBLE SUBSTANCES STORED IN CLOSE PROXIMITY (If "Yes", document evidence. Describe location and identity of hazardous waste. Take PHOTOGRAPHS.)

☐ YES ☒ NO

12. ADEQUATE CONTAINER WASHING AND REUSE PRACTICES

☒ YES ☐ NO

13. ADEQUATE PRACTICES FOR DISPOSAL OF EMPTY STORAGE CONTAINERS

☒ YES ☐ NO Non-disposable storage containers.



**SURFACE IMPOUNDMENTS SITE INSPECTION REPORT**  
(Supplemental Report)

**INSTRUCTION**  
Answer and Explain  
as Necessary.

1. TYPE OF IMPOUNDMENT

Two identical impoundments in filled marsh area. See photo #5.

2. STABILITY/CONDITION OF EMBANKMENTS

Good. See photo #4.

3. EVIDENCE OF SITE INSTABILITY (Erosion, Settling, Sink Holes, etc.)

☐ YES ☒ NO

4. EVIDENCE OF DISPOSAL OF IGNITABLE OR REACTIVE WASTE

☐ YES ☒ NO

5. ONLY COMPATIBLE WASTES ARE STORED OR DISPOSED OF IN THE IMPOUNDMENT

☒ YES ☐ NO

6. RECORDS CHECKED FOR CONTENTS AND LOCATION OF EACH SURFACE IMPOUNDMENT

☐ YES ☒ NO

7. IMPOUNDMENT HAS LINER SYSTEM

☐ YES ☒ NO

7a. INTEGRITY OF LINER SYSTEM CHECKED

☐ YES ☐ NO N/A

7b. FINDINGS

Subsurface soils have permeability of  $10^{-7}$  to  $10^{-8}$  cm/sec. See Attachment "C".

8. SOIL STRUCTURE AND SUBSTRUCTURE

Medium gray organic clay at surface to soft gray silty clay with sand traces at 40 to 50 feet.

9. MONITORING WELLS

☒ YES ☐ NO Two (2) wells installed. (See Attachment "C" - monitoring well logs.)

10. LENGTH, WIDTH, AND DEPTH

LENGTH 75' (each) WIDTH 40' (each) DEPTH 5' (each) Two impoundments.

11. CALCULATED VOLUMETRIC CAPACITY

15,000 ft.<sup>3</sup>

12. PERCENT OF CAPACITY REMAINING

30%

13. ESTIMATE FREEBOARD

1.5 ft.

14. SOLIDS DEPOSITION

☒ YES ☐ NO Low solids deposited.

15. DREDGING DISPOSAL METHOD

Unknown

16. OTHER EQUIPMENT



# ATTACHMENT A

## POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT SUPPLEMENT SHEET

Instruction - This sheet is provided to give additional information in explanation of a question on the form T2070-3.

Corresponding  
number on form

Additional Remark and/or Explanation

I, i.

Delta Ironworks was a large industrial park (approximate 165 acres) located on Industrial Blvd. in southeast Houma, LA. . The corporation of Delta Ironworks owned and operated 7 divisions, all located within the Delta Ironworks industrial facilities. These 7 divisions were:

- (1) Delta Shipyard - repair and painting of ships.
- (2) Delta Fabrication - produces offshore oil support equipment (platforms).
- (3) Delta Construction - produces pipes.
- (4) Delta Safety & Supply - distributes safety equipment and constructs fire safety equipment.
- (5) Heldenbrand - inspection, repair and modification of drill pipes.
- (6) Delta mud & chemical - distributor of drilling muds.
- (7) Gemoco - construction of offshore oil drill support equipment.

In 1969, Delta Ironworks was sold to Chromalloy American Corp., St. Louis, MO. Chromalloy maintained all 7 divisions until 1980. In November 1980 Chromalloy sold 5 of the divisions to Delta Services Industries, keeping Delta Mud & Chemical and Gemoco.

At the present time the old Delta Ironworks (LA 01317) area houses the same 7 divisions listed above, but has two owners: (1) Delta Services Industries, Houma, LA and (2) Chromalloy American Corp., MO.

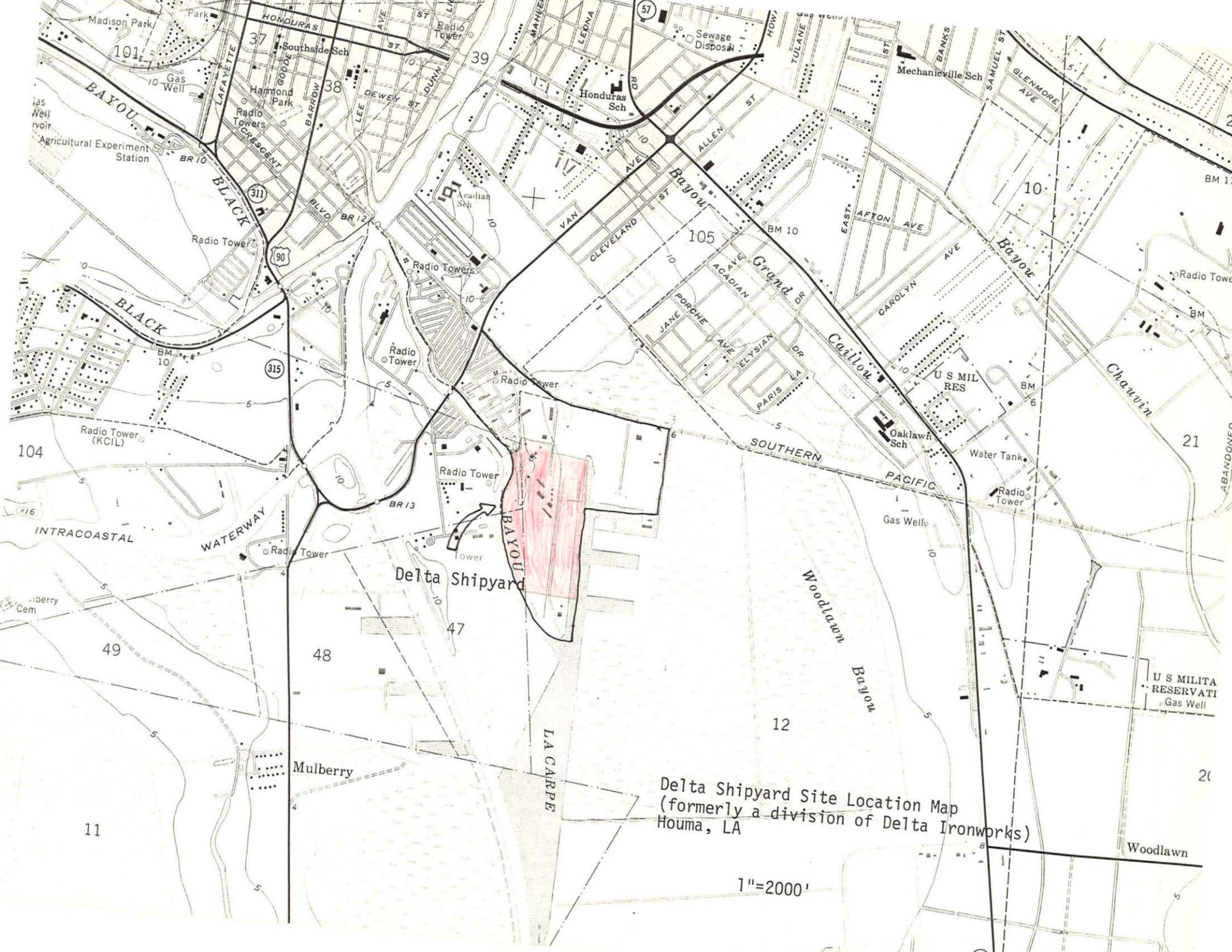
Upon inspecting the facilities, the FIT representatives found that only Delta Shipyard, owned by Delta Services Industries, may deal with hazardous wastes that could potentially pose a contamination problem.

Delta Shipyard consists of cleaning and repair facilities for small cargo and fishing vessels. Before any repair work may commence the vessels must be certified vapor free by the Coast Guard. The vessels are steam cleaned and the oily wastes are removed. The generated oils and waste waters are sent through a separation process after which the waste oil is recovered and sold. The wastes are stored in evaporation ponds (surface impoundments).

III, E.

Clayton L. Holden, P.O. Box 151, Chalmette, LA. (no longer used because he refuses to handle a manifest), Oily Wastes  
J & L Oils, P. O. Box 209, Geismar, LA 70734, (504)673-6785, Oily Wastes  
M. K. Fuels, Inc., P. O. Box 2802, Baton Rouge, LA 70821, (504)343-4662, Oily Wastes

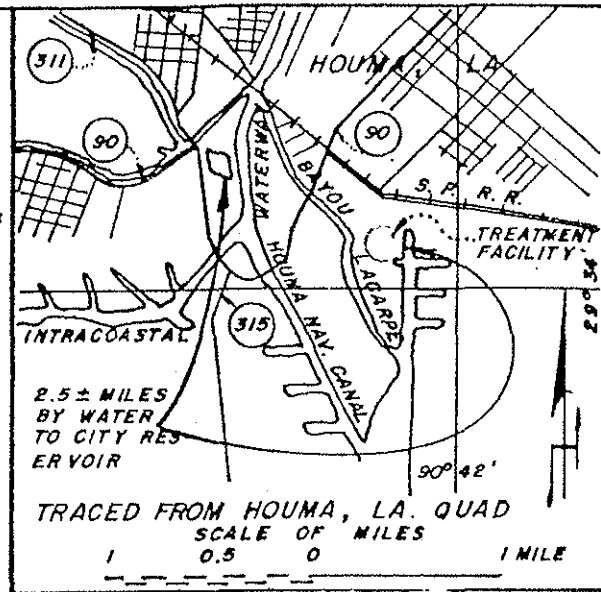
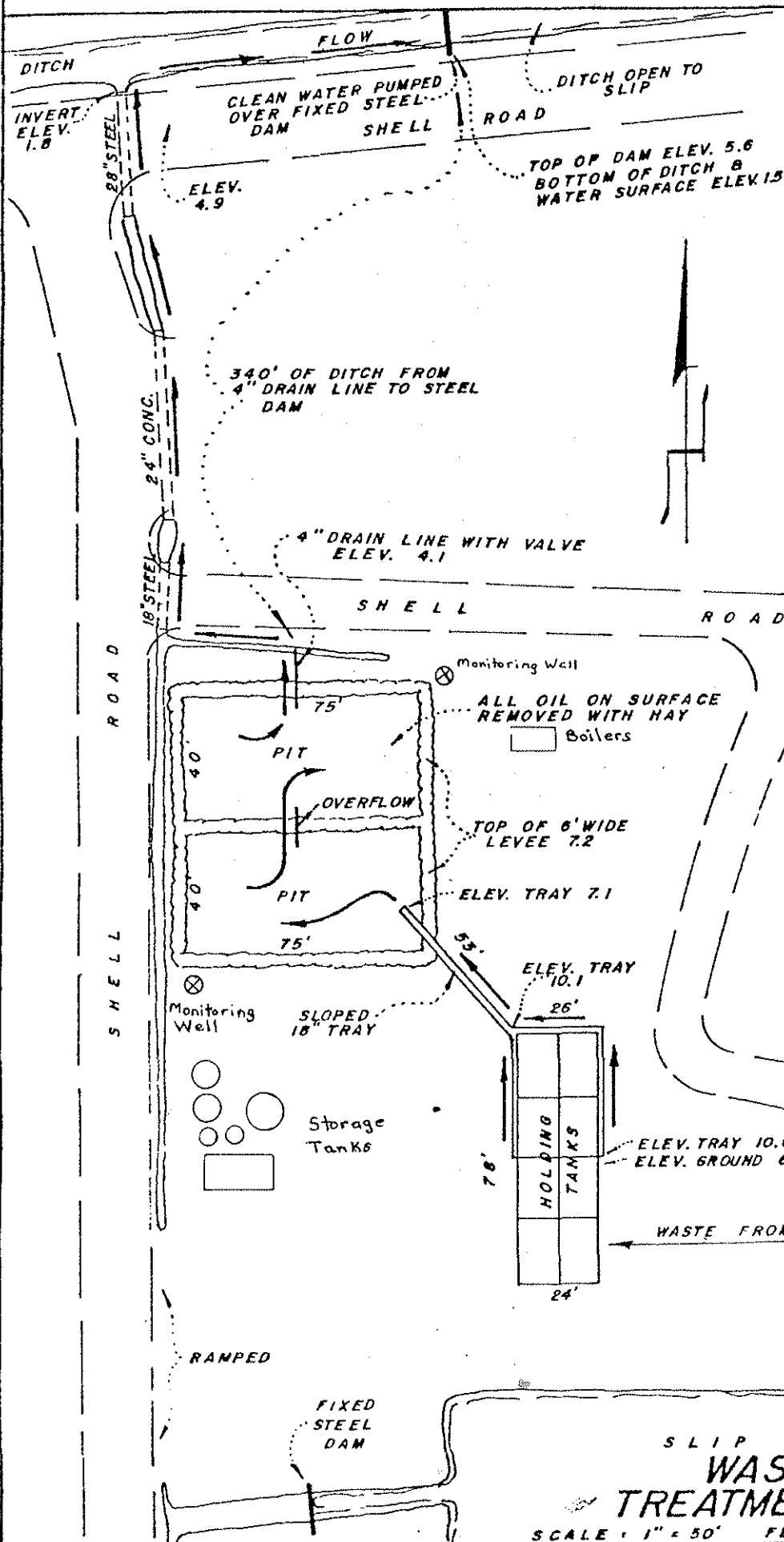




Delta Shipyard Site Location Map  
(formerly a division of Delta Ironworks)  
Houma, LA

1"=2000'





APPLICATION BY CHROMALLOY NATURAL RESOURCES CO. HOUMA, LOUISIANA

# SLIP WASH WASTE TREATMENT FACILITY

5.3.3.A 13)





# SOIL TESTING ENGINEERS, INC.

CONSULTING GEOTECHNICAL ENGINEERS

P. O. BOX 80379 • 316 HIGHLANDIA DRIVE • BATON ROUGE, LOUISIANA 70808 • PHONE (504) 292-4790

CONP. BOUTWELL, JR. PHD  
DOB ADAMS, ME  
ATL BRYANT, ME  
AETH DERICK, MS  
TIED PROFESSIONAL ENGINEERS  
BROWN, MS

November 26, 1980

T. Baker Smith and Sons, Inc.  
Environmental Research Division  
P. O. Box 2266  
Houma, Louisiana 70361

Attention: Mr. Horace J. Thibodaux, RS  
Director of Environmental Research

Re: Preliminary Soil Borings  
and Laboratory Testing  
Delta Shipyard Disposal Pit  
Houma, Louisiana  
File: 80-173

Gentlemen:

We have completed the field work and laboratory tests performed on samples obtained from two borings completed during the period November 3 and 4, 1980, at the Delta Shipyard disposal pit. Additionally, two observation wells with caps, were installed close to the borings (see Figure 2). The findings of the borings and the results of the laboratory testing are presented herein. The approximate locations of the borings are shown on the Boring Plan, Figure 1. The soil data on this cross section has been interpolated between the borehole locations and does not define continuity of the strata. For details, refer to the individual logs of the borings. The field and laboratory procedures used in this investigation are discussed below.

It should be noted that a geotechnical/geologic report was not requested at this stage. If such a report is later required, then necessary additional borings and testing, as well as engineering analyses can be performed.

## FIELD EXPLORATION

General. The borings were made with tractor-mounted, rotary-type drilling equipment. Samples were obtained continuously in the upper 20 feet; below the 20 foot level, samples were generally obtained on 3 to 5 foot centers. The total exploration program consisted of 100 lineal feet of borings, 40 feet of which were sampled continuously. Logs of the borings are attached. The boreholes were grouted with a thick bentonite/cement grout. Two observation wells were installed as indicated on the Monitoring Well logs (W-1 and W-2) and Figure 1.

CONSULTATION — EXPLORATION — TESTING — INSPECTION

LAKE CHARLES OFFICE. 4001 LEGION STREET • LAKE CHARLES, LOUISIANA 70601 • PHONE (318) 433-6912

ATTACHMENT C



Sampling Procedures. In the cohesive and semi-cohesive soils, relatively undisturbed samples were secured using a 3 inch diameter, thin-wall Shelby Tube sampler. In this sampling procedure, the borehole is advanced to the desired level, and the tube is lowered to the bottom of the boring. It is then forced about 2 feet into the undisturbed soil in one continuous stroke. The tube is retrieved and the sample extruded by a hydraulic piston. The sample is then visually classified and a penetrometer relative strength test performed. Any disturbed portions are discarded, and the sample protected for transportation to the laboratory.

#### LABORATORY PROCEDURES

Some samples from the various strata were tested in the laboratory to determine their classifications and permeability characteristics. The samples and types of tests performed were selected by a geotechnical engineer. The testing program conducted is described below.

Classification Tests. Thirteen (13) Atterberg Limit Determinations, and one Separate Moisture Content Determination were conducted to classify the soil types.

Consolidation/Permeability Tests. Two (2) Standard Consolidation tests were performed. These were used in determining the Coefficient of Permeability of fine grained soils. The results are given below.

Boring No.	Depth (feet)	Perm. Coef. (cm/sec.)	Soil Description
B-1	6-8	$4.3 \times 10^{-8}$	Gray organic clay
B-2	12-14	$1.2 \times 10^{-7}$	Dark gray organic clay (peat)

Chemical Tests. Fourteen (14) pH determinations were performed to determine soil acidity/alkalinity. The results are give on Table I.

The results of the consolidation test are presented on Figure A-I through A-II; the remainder of the testing program is summarized in the appropriate columns of the boring logs.

We will be happy to answer any questions which may arise concerning this information. It has been a pleasure to work with Mr. Thibodaux on this project, and we look forward to serving T. Baker Smith and Sons again in the future.

Sincerely,

*Narendra Dave*  
Narendra M. Dave  
Project Engineer

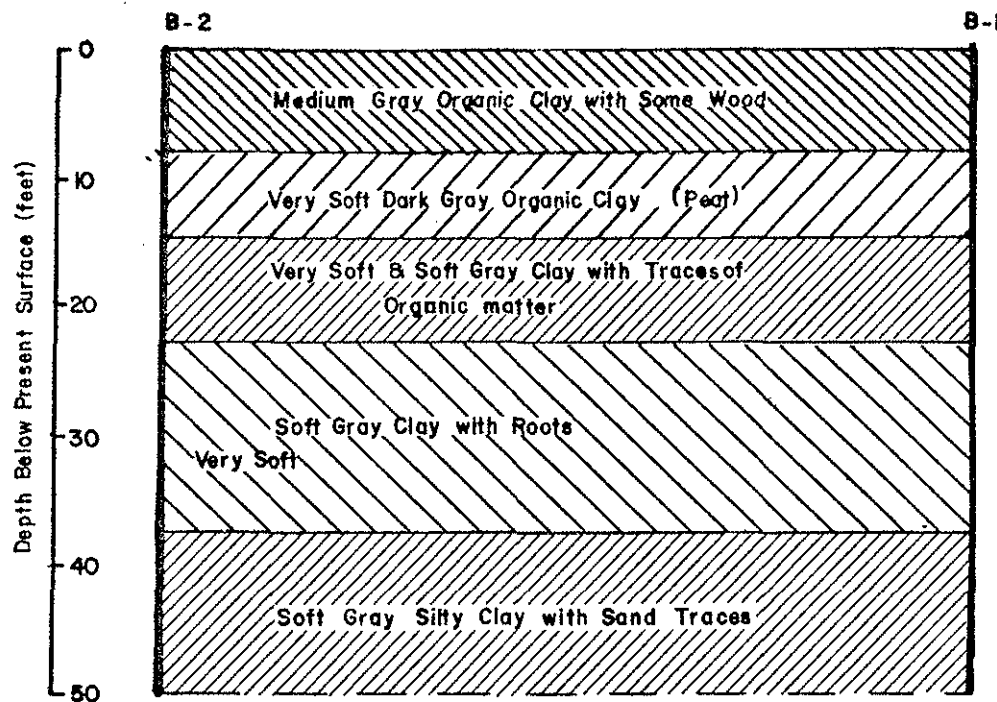
*Richard B. Adams*  
Richard B. Adams, P.E.

/llt

Enclosures

Copies submitted: (4)



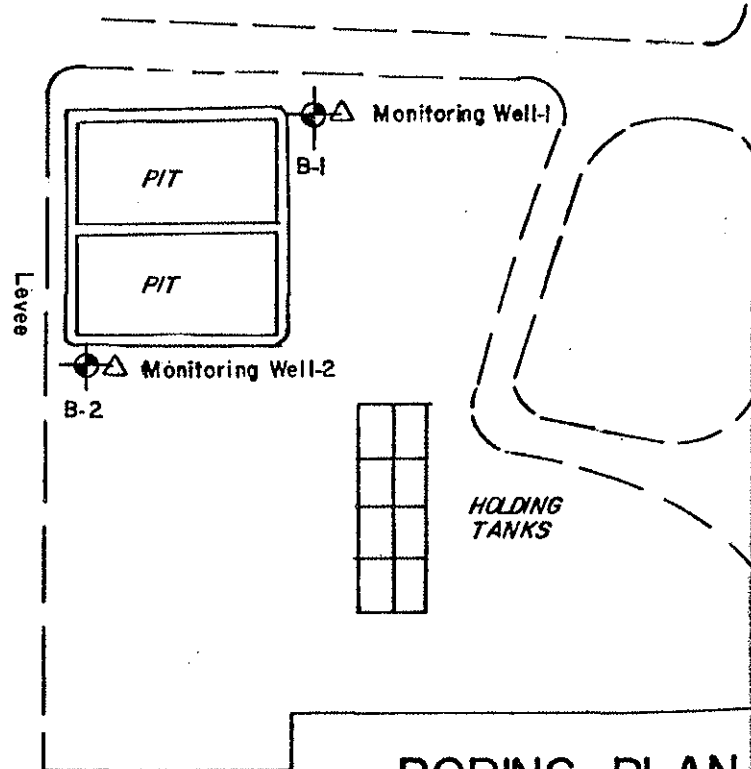


## SOIL PROFILE

No Horiz. Scale

NOTE:

Strata interpolated between  
not define continuity between



## BORING PLAN

No Scale



Project Delta Disposal Pit  
Houma, Louisiana

# SOIL BORING LOG

Boring No. B-1

File No. 80-173

Client T. Baker Smith & Sons, Inc.  
Houma, Louisiana

Sheet 1 of 2

Date 11/03/80

Tech. Chenevert

FIELD DATA			LABORATORY DATA					Boring Advance Method:
Depth (feet)	Sampling	Standard Penetration Test (blows/foot) or Penetrometer (P) (tons/sq. ft.)	Compressive Strength (tons/sq. ft.)	Moisture Content (%)	Dry Density (lb./cu. ft.)	Liquid Limit (%)	Plasticity Index (%)	Wash 0' to 50'
1.2 (P)								Medium gray organic clay, w/wood
0.8 (P)				52		102	74	
0.7 (P)								
0.5 (P)				78		140	93	
N.P.								Very soft dark gray organic clay (peat)
0.1 (P)				140		218	135	
0.1 (P)								
0.5 (P)								Very soft gray clay, w/traces of organic matter
0.2 (P)				37		66	37	
0.7 (P)								
0.6 (P)								Soft gray clay, w/roots
0.1 (P)				50		77	42	
0.0 (P)								
1.1 (P)				31				Medium gray silty clay, w/sand traces

## SYMBOL

Standard Penetration Test  
140 lb. hammer-30" fall

Undisturbed Sample  
3 in. dia. Shelby Tube

No Recovery

Compressive Strength from Unconfined Compression Test  
Unless Noted Otherwise

Strata Boundaries May Not Be Exact



SOIL TESTING ENGINEERS, INC.



# SOIL BORING LOG

**Project** Delta Disposal Pit  
Houma, Louisiana

**Boring No.** B-1

**File No.** 80-173


**Client** T. Baker Smith & Sons, Inc.  
Houma, Louisiana


**Sheet** 2 of 2

**Date** 11/03/80

**Tech.** Chenevert

FIELD DATA		LABORATORY DATA					
Depth (feet)	Standard Penetration Test (blows/foot) or Penetrometer(P) (tons/sq.ft)	Compressive Strength (tons/sq.ft.)	Moisture Content (%)	Dry Density (lbs./cu.ft.)	Liquid Limit (%)	Plasticity Index (%)	
45	0.6 (P)						Soft gray silty clay, w/sand traces
50	0.5 (P)		38		38	14	
							Boring terminated @ 50'

 Standard Penetration Test  
140 lb. hammer - 30" fall

 Undisturbed Sample  
3 in. dia. Shelby Tube

 No Recovery

Compressive Strength from Unconfined Compression Test  
Unless Noted Otherwise  
Strata Boundaries May Not Be Exact



SOIL TESTING ENGINEERS, INC.



# SOIL BORING LOG

Project Delta Disposal Pit  
Houma, Louisiana

Boring No. B-2

File No. 80-173

Client T. Baker Smith & Sons, Inc.  
Houma, Louisiana

Sheet 1 of 2

Date 11/04/80

Tech. A. Kahn

FIELD DATA		LABORATORY DATA					Boring Advance Method: Auger 0' to 2' Wash 2' to 50'
Depth (feet)	Standard Penetration Test (blows/foot) or Penetrometer (P) (tons/sq. ft.)	Compressive Strength (tons/sq. ft.)	Moisture Content (%)	Dry Density (lbs./cu. ft.)	Liquid Limit (%)	Plasticity Index (%)	
0	1.2 (P)		41		107	68	Medium gray organic clay, w/some wood
1	0.7 (P)		54		101	54	
5	0.6 (P)						
	N.P.						
10	0.3 (P)		131		154	107	Very soft dark gray organic clay (peat)
	0.3 (P)						
	0.4 (P)		110		284	162	
15	0.5 (P)						Soft gray clay, w/traces of organic matter
	0.2 (P)						
20	1.2 (P)		39		88	60	
25	0.5 (P)						Soft gray clay, w/wood & roots
30	0.4 (P)						
35	0.1 (P)		35		63	38	---very soft
40	0.3 (P)						Soft gray silty clay, w/sand traces

Standard Penetration Test  
140 lb. hammer - 30" fall

Undisturbed Sample  
3 in. dia. Shelby Tube

No Recovery

Compressive Strength from Unconfined Compression Test  
Unless Noted Otherwise

Soil Boundaries May Not Be Exact

Free Water First Encountered

Water Level After 10 minutes  
(Prior to Wash Boring)



SOIL TESTING ENGINEERS, INC.



# SOIL BORING LOG

Project Delta Disposal Pit  
Houma, Louisiana

Boring No. B-2

File No. 80-173

Client T. Baker Smith & Sons, Inc.  
Houma, Louisiana

Sheet 2 of 2

Date 11/04/80

Tech. Chenevert

FIELD DATA			LABORATORY DATA						
Ground Water Level	Depth (feet)	Sampling	Standard Penetration Test (blows/foot) or Penetrometer(P) (tons/sq.ft)	Compressive Strength (tons/sq.ft.)	Moisture Content (%)	Dry Density (lbs./cu.ft.)	Liquid Limit (%)		Plasticity Index (%)
	45	0.3 (P)		32			35		9
	50	0.7 (P)							
Soft gray silty clay, w/sand traces									
Boring terminated @ 50'									

W230L

Standard Penetration Test  
140 lb. hammer-30" fall

Undisturbed Sample  
3 in. dia. Shelby Tube

No Recovery

Compressive Strength from Unconfined Compression Test  
Unless Noted Otherwise

Strata Boundaries May Not Be Exact



SOIL TESTING ENGINEERS, INC.



# MONITORING WELL LOG

Boring No. W-1

Project Delta Disposal Pit  
Houma, Louisiana

Client T. Baker Smith & Sons, Inc.  
Houma, Louisiana

File No. 80-173

Date 11/03/80

By Chenevert

## FIELD DATA

Boring Advance Method:

Drill Rig: 200

Driller: James Kelly

Wash 0' to 12'

Standard Penetration Test  
(Blows / foot)  
or  
Penetrometer (P) - Torque (T)  
(ft-lb / sq ft)

DEPTH  
(feet)

5

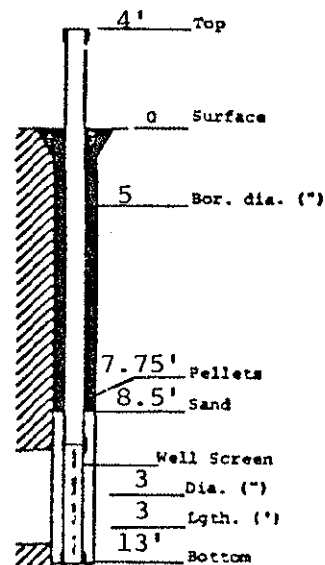
10

SEE BORING B-1

Boring terminated @ 12'

## Monitoring Well Data

Well No. 1



☒ Standard Penetration Test  
140 lb hammer - 30 in fall

☒ Undisturbed Sample  
3 in dia Shelby Tube

☒ No Recovery

Strong boundaries inferred and may not be exact



SOIL TESTING ENGINEERS, INC.



# MONITORING WELL LOG

Boring No. W-2

Project Delta Disposal Pit  
Houma, Louisiana

Client T. Baker Smith & Sons, Inc.  
Houma, Louisiana

File No. 80-173

Date 11/04/80

By Chenevert

## FIELD DATA

Boring Advance Method:

Wash 0' to 20'

Drill Rig: 200

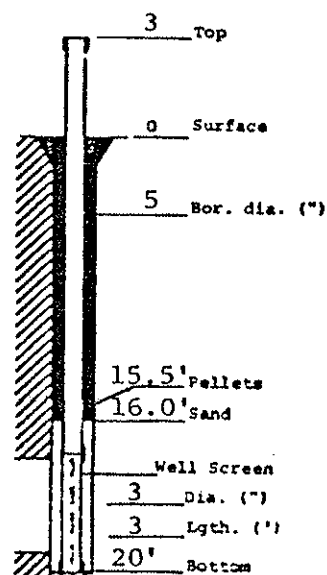
Driller: James Kelly

DEPTH  
(feet)

Standard Penetration Test  
(blows / foot)  
or  
Penetrometer (P) - Pressure (T)  
(tons / sq. ft.)

## Monitoring Well Data

Well No. 2



SEE BORING B-2

Boring terminated @ 20'

Standard Penetration Test  
140 lb hammer - 30 in fall

Undisturbed Sample  
3 in dia Shelby Tube

No Recovery

Strata boundaries inferred and may not be exact



SOIL TESTING ENGINEERS, INC.

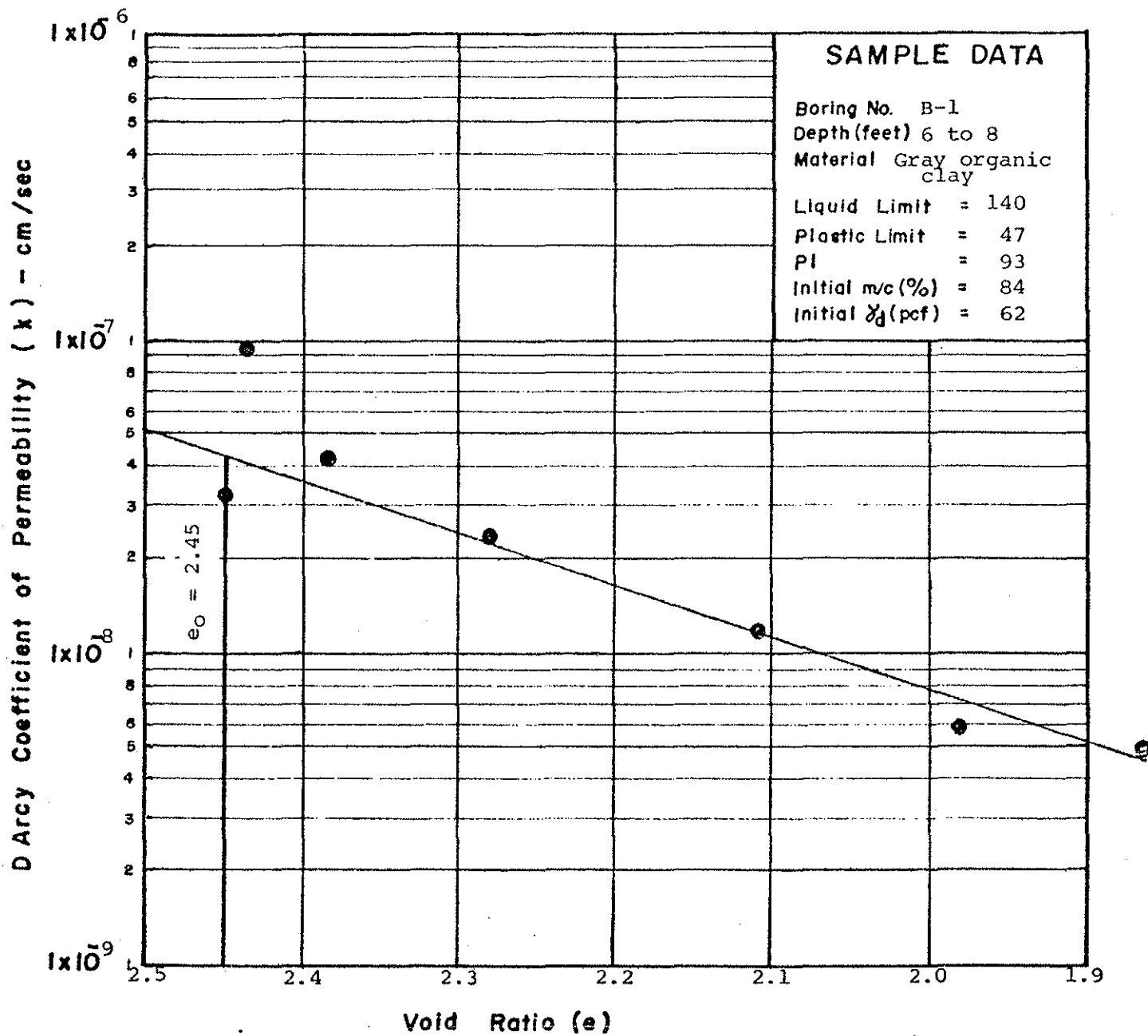




TABLE I  
CHEMICAL ANALYSIS

<u>Boring No.</u>	<u>Depth (feet)</u>	<u>pH</u>
1	2.0 to 4	7.3
1	6.0 to 8	7.9
1	10.0 to 12	5.9
1	16.0 to 18	7.3
1	28.0 to 30	8.2
1	38.0 to 40	8.1
2	0 to 2	6.8
2	4.0 to 6	7.7
2	8.0 to 10	7.5
2	12.0 to 14	6.3
2	18.0 to 20	8.0
2	33.0 to 35	8.0
2	43.0 to 45	8.0





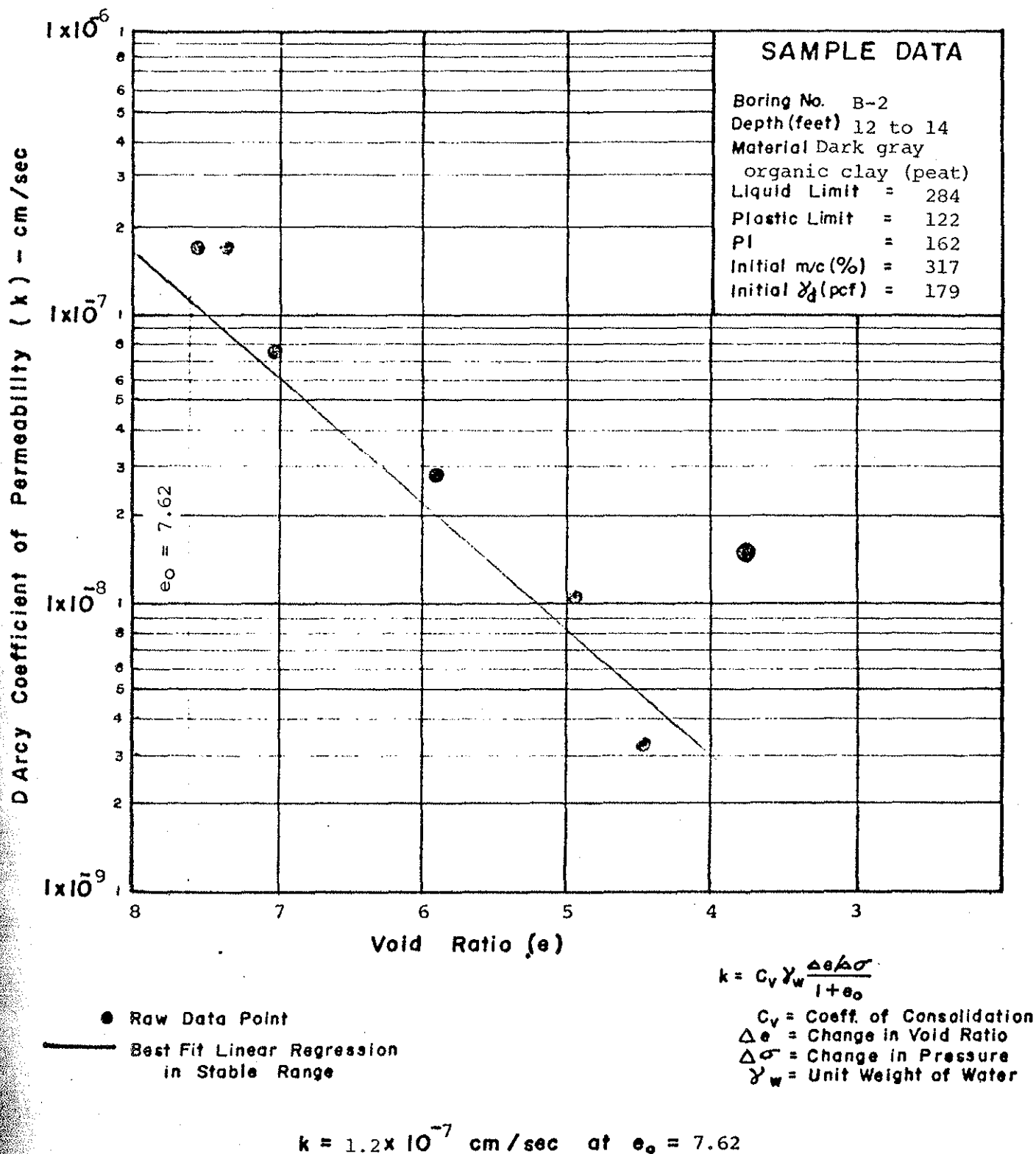
$$k = C_v \gamma_w \frac{\Delta e \Delta \sigma}{1 + e_0}$$

$C_v$  = Coeff. of Consolidation  
 $\Delta e$  = Change in Void Ratio  
 $\Delta \sigma$  = Change in Pressure  
 $\gamma_w$  = Unit Weight of Water

$$k = 4.3 \times 10^{-8} \text{ cm/sec at } e_0 = 2.45$$

### PERMEABILITY DETERMINED BY CONSOLIDATION TEST



**PERMEABILITY DETERMINED BY CONSOLIDATION TEST**